COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF THE WHITE HALL WATER DISTRICT, OF MADISON COUNTY, KENTUCKY, FOR APPROVAL OF CONSTRUCTION, FINANCING, AND INCREASED WATER RATES	CASE NO. 9722

O R D E R

IT IS ORDERED that White Hall Water District ("White Hall") shall file an original and seven copies of the following information with the Commission with a copy to all parties of record no later than January 23, 1987. If the information cannot be provided by this date, White Hall should submit a motion for an extension of time stating the reason a delay is necessary and include a date by which it will be furnished. Such motion will be considered by the Commission. White Hall shall furnish with each response the name of the witness who will be available at the public hearing for responding to questions concerning each item of information requested.

1. White Hall filed computer hydraulic analyses for the existing water distribution system with its application. These analyses depicted the operation of the existing system when subject to peak, normal and slack demand periods. Unfortunately, these analyses did not depict existing pump operation, the "empty-fill" cycles of existing tanks, etc. Based on this, provide hydraulic analyses, supported by computations and actual field

measurements, of typical operational sequences of the existing water distribution system. These hydraulic analyses should demonstrate the operation of all pump stations and the "empty-fill" cycle of all water storage tanks. Computations are to be documented by a labeled schematic map of the system that shows pipeline sizes, lengths, connections, pumps, water storage tanks, wells, and sea level elevations of key points, as well as allocations of actual customer demands. Flows used in the analyses shall be identified as to whether they are based on average instantaneous flows, peak instantaneous flows, or any combination or variation thereof. The flows used in the analyses shall be documented by actual field measurements and customer use records. Justify fully any assumptions used in the analyses.

2. Provide a summary of any operational deficiencies of the existing water system that are indicated by the hydraulic analyses or that are known from experience.

3. White Hall also filed computer hydraulic analyses for the proposed water distribution system with its application. These analyses depicted the operation of the proposed system when subject to peak, normal and slack demands. Also included were several analyses subjecting the system to peak demands and a 70 gallons per minute demand at different locations (i.e. Madison Village, Valley View, Calloway Creek and Red House). Unfortunately these anaylses did not depict existing or proposed pump operation, the "empty-fill" cycles of the existing or proposed tanks, etc. Based on this, provide hydraulic analyses, supported by computations and actual field measurements, of

typical operational sequences of the existing water distribution system. These hydraulic analyses should demonstrate the operation of all pump stations and the "empty-fill" cycle of all water storage tanks. Computations are to be documented by a labeled schematic map of the system that shows pipeline sizes, lengths, connections, pumps, water storage tanks, wells, and sea level elevations of key points, as well as allocations of actual customer demands. Flows used in the analyses shall be identified as to whether they are based on average instantaneous flows, peak instantaneous flows, or any combination or variation thereof. The flows used in the analyses shall be documented by actual field measurements and customer use records. Justify fully any assumptions used in the analyses. (Note - these analyses should use the same schematic as the analyses of the existing water distribution system to facilitate comparison).

4. In order to obtain realistic results when utilizing computer hydraulic analyses to predict a water distribution system's performance, engineering references stress the importance of calibrating the results predicted to actual hydraulic conditions. This calibration process should include matching field measurements to the results predicted by the computer over a wide range of actual operating conditions. As a minimum this should include average and maximum water consumption periods, as well as "fire flow" or very high demand periods.

Based on the above, explain the procedures used to verify the computer hydraulic analyses filed in this case. This explanation

should be documented by field measurements, hydraulic calculations, etc.

5. Provide a pressure recording chart showing the actual 24-hour continuously measured pressure available at the locations listed below on White Hall's system. Identify the 24-hour period recorded, the exact location of the pressure recorder and the sea level elevation of the recorder. Also state the schematic junction number nearest the location of the pressure recorder.

a. Water line on the City of Richmond's water system at or near the proposed connection point to White Hall.

b. Tank No. 1.

c. Tank No. 2.

d. Water line in the vicinity of junction 27.

e. Water line in the vicinity of junction 41.

f. Water line in the vicinity of junction 44.

g. Water line in the vicinity of junction 81.

h. Water line in the vicinity of junction 86.

i. On the suction and discharge sides of Pump No. 1.

j. On the suction and discharge sides Pump No. 2.

6. Provide a list of each of White Hall's water storage tanks. Give the location, capacity, and overflow elevation of each tank. Explain how water is supplied to each tank.

7. Provide a list of each of White Hall's existing pump stations. Give the location, number of pumps and their rated capacities, and the purpose of each pump station. Explain how the operation of each pump station is controlled. Provide a copy of the pump manufacturer's characteristics (head/capacity) curve for

each of White Hall's existing pumps. Identify each curve as to the particular pump and pump station to which it applies. Also state if pump is in use and if pump will remain in use, will be abandoned or will be replaced.

8. Provide a copy of the pump manufacturer's characteristics (head/capacity) curve on which the design of the proposed pump station was based.

9. Provide the criteria used in determining the location, size, overflow elevation and head range for the proposed water storage tank.

10. Provide a narrative description of the proposed daily operational sequences of the water system. Documentation should include the methods and mechanisms proposed to provide positive control of all storage tank water levels. The description should also include an hourly summary of how all tanks will "work" (expected inflow or outflow of water) and how all pumps will function. The description should be fully supported by appropriate field measurements and hydraulic calculations.

11. The engineering information submitted with the application indicates that White Hall is proposing to install approximately 16 fire hydrants as part of this project. The "Recommended Standards For Water Works" by the Great Lakes - Upper Mississippi River Board of State Sanitary Engineers ("Ten States Standards") and the Insurance Services Office ("ISO") both have requirements for providing fire protection. Both organizations recommend a minimum of 6-inch diameter water lines and the capability to deliver at least 250 gallons per minute at a

residual pressure of 20 pounds per square inch for a minimum of 2 hours from any fire hydrant. Based on the above, provide information as to the purpose of the proposed fire hydrants. If the purpose of the proposed fire hydrants is to provide fire protection, provide hydraulic analyses demonstrating the capability of White Hall's system to comply with the requirements of the ISO and the Ten States Standards. If the fire hydrants are proposed for reasons other than fire protection state why other equipment was not considered.

12. Provide an explanation of how it was determined that $420,915 was White Hall's required level of revenues.

13. Exhibit B of the grant agreement between Madison County and the Department for Local Government requires that 140 households receive free tap-on to the water system. Provide a listing of these customers and indicate whether they have already been connected or will be connected as part of the construction proposed in this case.

Done at Frankfort, Kentucky, this 24th day of December, 1986.

PUBLIC SERVICE COMMISSION

Robert D. Hemenway
For the Commission

ATTEST:

Executive Director